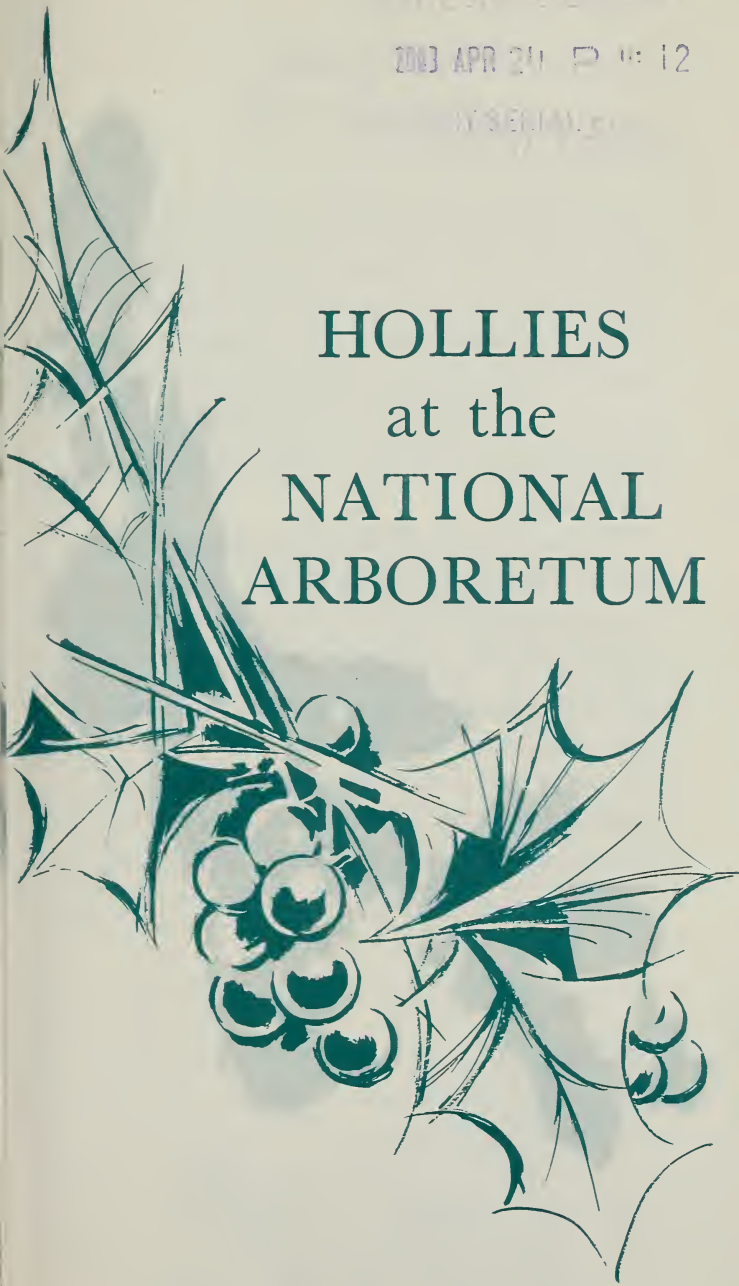


HOLLIES at the NATIONAL ARBORETUM

U.S. DEPARTMENT OF AGRICULTURE

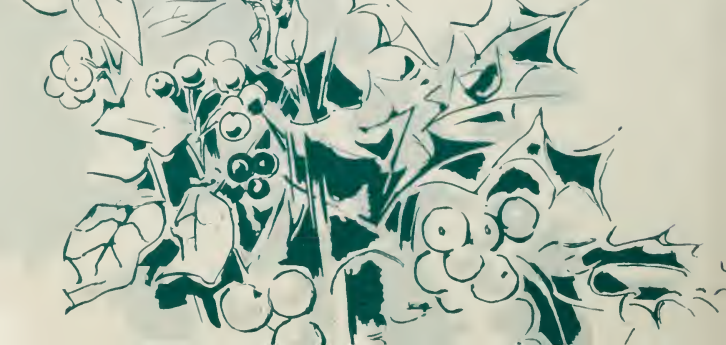
PA–488

HOLLIES at the NATIONAL ARBORETUM

The hollies with their bright red fruits and glossy leaves add a cheery note to the fall and winter landscape at the National Arboretum.

The holly collections at the Arboretum were assembled to increase our knowledge of these horticulturally important plants and to educate the gardening public as to the merits of the various kinds.

The plantings on public display (indicated on the map) are labeled to help visitors identify the various species of hollies. These plantings also suggest possible landscape uses for hollies. In addition to the plantings on display, the Arboretum has research collections of hollies, which are being used in a breeding program to develop superior forms, particularly for sections of the country where hollies are not now climatically adapted.



BOTANICAL DESCRIPTION AND DISTRIBUTION

The holly belongs to the genus *Ilex*. It is the only horticulturally important member of the Holly family (Aquifoliaceae), which contains two other genera—*Nemopanthus* and *Byronia*.

Holly flowers are of two kinds—male and female. The two kinds of flowers are borne on separate plants; thus, hollies are said to be dioecious. Female trees produce berries after their flowers receive pollen transferred from the male flowers by bees. Male trees do not produce berries.

Hollies may produce berries that are red, yellow, or black, the color depending on the species and variety of the plant. The leaves may be spiny or spineless. The plants may be evergreen or deciduous.

Hollies are found on all continents except Australia. Nearly 300 species have been described. Nineteen species are native to eastern and southern United States; approximately 37 species are in cultivation in this country.

KINDS OF HOLLY

Hollies of the garden may be roughly classified into six principal groups:

- American Holly. Though a number of hollies are native to the Eastern United States, the name "American holly" usually refers to *Ilex opaca*. American holly typically is a broadly pyramidal tree with dull, olive-green, spiny leaves and red berries. There are also spineless-leaved and yellow-fruited forms.
- English Holly. *Ilex aquifolium* and hybrids between this species and the Canary Island *Ilex perado* constitute the group known as English hollies. The most outstanding characteristics of this group are the glossy foliage and the number of forms having variegated leaves. Both yellow- and red-fruiting forms are available. The Oregon hollies of the Christmas trade belong in this group.

Holly flowers: *Left*, female; *right*, male.

● Chinese Holly. A number of Chinese hollies are in cultivation, but the group name usually refers to the species *Ilex cornuta*. This species typically has glossy foliage, large red berries, and viciously spined leaves; however, it is best known by its spineless-leaved form *Ilex cornuta* 'Burford'.

● Japanese Holly. The Japanese hollies (*Ilex crenata*) are the most widely grown of all hollies. Because of their small spineless leaves, resembling those of the box plant, and their black fruit, Japanese hollies are not recognized by most people as being hollies. The dwarf form *Ilex crenata* 'Helleri' is widely grown.

● Miscellaneous Evergreen Hollies. Among the most readily available miscellaneous evergreen hollies are *Ilex glabra*, the native black-fruited Inkberry, which is the hardiest of all evergreen hollies; two Chinese species, *Ilex pedunculosa*, having red fruits suspended on long stalks, and *Ilex pernyi*, a slow-growing species with spiny leaves; and *Ilex aquipernyi*, a hybrid of *Ilex pernyi* with *Ilex aquifolium*. *Ilex* 'Foster', a recent hybrid between *Ilex opaca* and *Ilex cassine*, shows great promise for use as a hedge.

● Deciduous Hollies. Several kinds of deciduous hollies are growing in the Arboretum; however, the only deciduous holly usually available from nurseries is our native Winterberry (*Ilex verticillata*), also called Black Alder. Though it normally is a plant of swamplands, it will adapt itself to garden conditions and produce an abundance of red

berries that are plump and firm at Christmas time. Its Asiatic counterpart, *Ilex serrata*, is usually covered with masses of red berries in early autumn.

WHY HOLLIES FAIL TO FRUIT

Most hollies must be pollinated before they will set an effective display of berries. Some hollies, through a process known as parthenocarpy, will produce berries without being pollinated. *Ilex cornuta* and its variety 'Burford', however, are the only hollies common to our gardens that will set an effective display of berries by this process. If your holly plants do not set berries, the reason may be that—

- The plant is male. Male and female flowers are borne on separate plants and male plants do not form berries.
- The plant is too young to flower. Hollies do not flower freely until they are 6 to 8 years old.
- A male plant of the same species is not close enough for effective pollination. Bees can bring pollen from male plants that are up to 2 miles away. But the shorter the distance between male and female plants, the better the chances for effective pollen transfer and heavy fruit set. A male plant of the same species as the female makes the best pollinator.
- Cold weather at flowering time reduces activity of bees, thus reducing chances for pollination. In addition, cold weather may kill the female flowers.

CULTURAL SUGGESTIONS

The cultural needs of hollies are not great. A liberal quantity of organic matter added to the soil at planting time usually assures a good start for the plants, even in heavy clay soils. A 2- to 3-inch mulch of decayed sawdust, leaves, or wood chips should be applied annually under the spread of the branches. Failure to maintain the mulch at its original depth, however, can be detrimental because of the extensive rooting that occurs in the mulch.

NUMBERED LOCATIONS FOR ITEMS OF SPECIAL INTEREST

1. *Magnolia macrophylla*
2. *Magnolia acuminata*
3. Twin Oaks Overlook
4. Avenue of *Magnolia* 'Verbanica' and *Magnolia denudata*
5. *Ilex pedunculosa*
6. *Magnolia grandiflora*
7. Hexagonal Teakwood Bench
8. Hedge of *Ilex cornuta* 'Rotunda'
9. *Ilex altaclarensis* 'Camelliaefolia'
10. *Magnolia virginiana*
11. *Ilex serrata*
12. *Ilex crenata* 'Buxifolia'
13. *Magnolia soulangiana*
14. *Ilex decidua*
15. *Magnolia* 'Freeman'
16. *Ilex crenata* 'Helleri'
17. *Magnolia denudata*
18. *Magnolia kobus borealis*
19. *Magnolia stellata*
20. *Ilex crenata convexa*
21. *Ilex integra*
22. *Ilex latifolia*
23. *Ilex aquifolium* 'Argentea Variegata'
24. Hybrid hollies
25. *Ilex chinensis*
26. *Ilex crenata latifolia*
27. *Ilex vomitoria*
28. *Ilex opaca*

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Need for fertilizer can best be determined from the annual amount of growth in the side twigs. If the side twigs of dwarf varieties grow 1 to 2 inches, and the side twigs of vigorous tree types grow 8 to 10 inches, the plants need no fertilizer. If growth is less than this, apply a fertilizer specially formulated for acid-loving broadleaf evergreens. Usually a single application is sufficient. Apply the fertilizer in early March at the rates recommended by the manufacturer.

A yearly pruning at Christmas time is usually enough to control the shape of the plants. This pruning also provides holiday greens.

Growth Through Agricultural Progress

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